UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

336391

445202

Ref: 8HWM-SM

AUG 13 1992

TO: file

FROM: Pat Smith, 8HWM-SM
Site Assessment Manager (SAM)

SUBJECT: TriState Beresford decision

An in-house evaluation was performed for data collected late in the FIT contract at the TriState Beresford site in Hudson, South Dakota. Since hits were not found in those samples which would have been critical to obtain a potential score exceeding 28.5, a sound decision for no further action can be made without reassigning the work of an Analytical Results Report. Supporting documentation for the decision filed 8/12/92 are attached.

These documents, and reports which already exist in the file, cummulatively meet the requirements of the National Contingency Plan (NCP) section 300.420 (c) 5 for SI reporting. The decision not to assign a formal ARR at this site is not routine. It is based on the current lengthy turn-around time for contractor performance, the quality of the work products where the writer has not been familiar with the site through the entire SI, and the small return for the tax dollar when the conclusion is already evident.

Attachments:
Quick notes by SAM
Data validation package

Tri State - Beresford
Quick Notes

Attached are sample results from Tri State Beresford site in Hudson, SD. WS samples were validated; no other samples were validated. Samples were collected July 17-18, 1991.

Source samples indicated more than 3x background for Al, Cd, Ag, and V in WS samples; and more than 3x background for Cd, Cu, Pb, Hg, and Ag in other soil source samples.

Target and media sampling for releases indicated no hits to surface water. These were tested by sediment sampling, SE-1 and SE-2. Of the substances attributable to the site (in paragraph 2), none were found above benchmark or action

levels in the Opdahl drinking water well, GW-1.

R B Smith
8/10/92

TriState - Beresford
(not validated)

SW Sampling (Sediments)

MHP-579
BKG

SD-9

MHP-580
SE-1

SE-2
MHP-581

Units (ug/L or mg/kg dry w

Analyte	Concentration	C	Concentration	C	Concentration	C
Aluminum	14200		12200		14000	
Antimony	10.5	U	10.5	U	12.0	U
Arsenic	10.5		6.8		8.5	
Barium	240		180		221	
Beryllium	0.90	B	0.59	B	0.56	B
Cadmium	0.77	B	0.68	U	0.78	U
Calcium	4040		12800		10900	
Chromium	20.2		19.3		20.4	
Cobalt	12.4		10.5	B	11.5	B
Copper	18.7		11.3		12.6	
Iron	21400		16700		19200	
Lead	20.6		13.3		14.0	
Magnesium	3550		4760		4360	
Manganese	912		611		1200	
Mercury	0.11	U	0.11	U	0.13	U
Nickel	25.1		26.4		28.2	
Potassium	2980		1550		2270	
Selenium	0.42	B	2.4		1.8	
Silver	1.1	U	1.1	U	1.3	U
Sodium	10.0	U	10.0	U	11.5	U
Thallium	0.32	B	0.27	B	0.27	B
Vanadium	36.0		33.0		36.1	
Zinc	94.3		70.3		70.7	
Cyanide	2.9	U	2.9	U	3.3	U

GW Sampling (water)

Opdahl DW

Units (ug/L or mg/kg dry w

GW-1

Analyte	Concentration	C
Aluminum	1170	
Antimony	46.0	U
Arsenic	1.1	B
Barium	69.5	B
Beryllium	1.5	B
Cadmium	3.0	U
Calcium	238000	
Chromium	7.0	U
Cobalt	6.0	U
Copper	45.8	
Iron	1340	
Lead	1.0	U
Magnesium	152000	
Manganese	5920	
Mercury	0.20	U
Nickel	41.8	
Potassium	8630	
Selenium	10.0	U
Silver	5.0	U
Sodium	59400	
Thallium	1.0	U
Vanadium	11.0	B
Zinc	96.6	
Cyanide	10.0	U

Tri State - Beresford
Source Sampling
(validated)

MHP-579
Bkg
SO-9

Units (ug/L or mg/kg dry wt)

Analyte	Concentration	C
Aluminum	14200	
Antimony	10.5	U
Arsenic	10.5	
Barium	240	
Beryllium	0.90	B
Cadmium	0.77	B
Calcium	4040	
Chromium	20.2	
Cobalt	12.4	
Copper	18.7	
Iron	21400	
Lead	20.6	
Magnesium	3550	
Manganese	912	
Mercury	0.11	U
Nickel	25.1	
Potassium	2980	
Selenium	0.42	B
Silver	1.1	U
Sodium	10.0	U
Thallium	0.32	B
Vanadium	36.0	
Zinc	94.3	
Cyanide	2.9	U

Units (ug/L or mg/kg dry wt)

Analyte	Concentration MHT-429 WS-1	C	Concentration MHT-430 WS-2	C
Aluminum	2250.00		71600.00	
Antimony	2.80	U	[illegible]	
Arsenic	2.80 j		[illegible]	
Barium	19.60	[illegible]	80.60	
Beryllium	0.20	U	[illegible]	
Cadmium	[illegible]		0.24	B
Calcium	[illegible]	[illegible]	[illegible]	
Chromium	17.10		[illegible]	
Cobalt	3.30	B	0.62	B
Copper	30.70 j		3.20	B
Iron	[illegible]300.00		14.70 j	
Lead	1.60		[illegible] j	
Magnesium	[illegible]4.00	B	2.80	
Manganese	53.40		370.00	B
Mercury	0.10	U	54.40	
Nickel	32.40		0.10	U
Potassium	581.00	B	3.80	
Selenium	0.40	U	567.00	B
Silver	346.00		0.40 uj	
Sodium	1520.00		437.00	
Thallium	0.20	U	404.00	B
Vanadium	156.00		0.20	
Zinc	121.00 j		21.30	
Cyanide			9.20 j	

Tri State - Beresford
Source Sampling
(not validated)

MHP-579
Bkg

Units (ug/L or mg/kg dryL or mg/kg dry

Analyte	SO-9 Concentration		MHP-571 SO-1 Concentration	C	MHP-572 SO-2 Concentration	C	MHP-573 SO-3 Concentration	C	MHP-574 SO-4 Concentration	C	MHP-575 SO-5 Concentration	C
Aluminum	14200		12200		9580		13600		11900		11400	
Antimony	10.5		10.8	U	9.8	U	10.1	U	10.9	U	11.5	U
Arsenic	10.5		8.9		9.4		9.3		8.8		7.0	
Barium	240		246		276		300		288		260	
Beryllium	0.90		0.82	B	0.66	B	0.74	B	0.38	B	0.42	B
Cadmium	0.77		0.71	U	1.1		0.83	B	1.9		0.75	U
Calcium	4040		25300		25200		19200		20900		28800	
Chromium	20.2		19.8		17.2		21.2		19.9		17.5	
Cobalt	12.4		13.1		9.0	B	12.1		11.1	B	9.2	B
Copper	18.7		17.1		32.2		16.2		19.4		15.4	
Iron	21400		20800		18500		20800		20000		18200	
Lead	20.6		24.4		457		63.7		56.3		20.9	
Magnesium	3550		9570		7650		7780		7360		6940	
Manganese	912		1210		1000		1120		1190		853	
Mercury	0.11		0.12	U	0.38		0.99		2.7		0.13	U
Nickel	25.1		35.0		24.1		34.1		30.5		25.1	
Potassium	2980		2910		2950		3070		2720		4990	
Selenium	0.42		0.24	U	0.21	U	0.22	U	0.24	U	0.25	U
Silver	1.1		1.2	U	194		34.9		256		1.7	B
Sodium	10.0		30.0	B	31.1	B	9.6	U	10.4	U	11.0	U
Thallium	0.32		0.29	B	0.22	B	0.22	U	0.29	B	0.25	U
Vanadium	36.0		36.6		28.2		38.9		35.3		34.1	
Zinc	94.3		66.4		113		93.1		136		71.7	
Cyanide	2.9		2.9	U	2.7	U	2.7	U	3.0	U	3.1	U

Tri State - Beresford
Source Sampling
(not validated)

MHP-579
Bkg

Units (ug/L or mg/kg dry)

Analyte	SO-9 Concentration		MHP-576 SO-6 Concentration		MHP-577 SO-7 Concentration		MHP-578 SO-8 Concentration		MHP-583 SO-10 Concentration		MHP-584 SO-11 Concentration		MHP-585 SO-12 Concentration	
Aluminum	14200		10600		1970		10800		11600		5430		13700	
Antimony	10.5		10.7	U	9.6	U	9.9	U	11.5	U	10.0	U	12.0	U
Arsenic	10.5		8.6		5.8		6.9		9.1		8.4		13.1	
Barium	240		289		80.2		293		256		239		258	
Beryllium	0.90		0.85	B	0.21	U	0.28	B	0.31	B	0.30	B	0.69	
Cadmium	0.77		0.70	U	18.3		0.65	U	1.2	B	0.65	U	0.78	
Calcium	4040		21600		53500		31100		19900		35600		3360	
Chromium	20.2		17.5		6.9		19.1		18.2		13.8		20.4	
Cobalt	12.4		11.5	B	5.3	B	9.8	B	10.4	B	10.4	B	11.9	
Copper	18.7		19.1		156		21.9		17.0		12.6		16.6	
Iron	21400		23900		10300		16200		18900		25100		22000	
Lead	20.6		22.9		43.4		27.5		35.2		11.4		21.6	
Magnesium	3550		7590		13500		10300		6630		8650		3620	
Manganese	912		1010		1730		1390		1020		2160		610	
Mercury	0.11		0.12	U	0.10	U	0.11	U	0.13	U	0.11	U	0.13	U
Nickel	25.1		30.8		22.0		23.2		30.5		27.1		26.1	
Potassium	2980		3210		560	B	1790		3730		1360		3730	
Selenium	0.42		0.23	U	0.21	U	0.22	U	0.25	U	0.22	U	0.26	U
Silver	1.1		17.8		265		210		7.6		132		1.8	
Sodium	10.0		10.3	U	9.2	U	63.4	B	11.0	U	9.5	U	11.4	U
Thallium	0.32		0.32	B	0.23	B	0.28	B	0.27	B	0.37	B	0.39	B
Vanadium	36.0		29.6		10.0	B	25.2		31.8		22.3		34.0	
Zinc	94.3		94.4		49.2		72.8		109		76.8		112	
Cyanide	2.9		2.9	U	2.6	U	2.7	U	3.1	U	2.7	U	3.3	U

Tri-State

REGION VIII
INORGANIC - SUMMARY OF CLP DATA QUALITY ASSURANCE REVIEW

CASE/SAS/LGN NO.	SITE NAME	OPERABLE UNIT
Case 17015, SAS - 6634H	Tri-State Mint	ZZ
RPM NAME	ESAT TID - 08-9109-004	
Pat Smith	ESAT WAD - 10	

CONTRACTOR LABORATORY	CONTRACT NO.	REPORT NO.	LABORATORY DPO/REGION
Keystone	68-D0-0148	SDG MHT 429	Wilding/III

REVIEW ASSIGNED DATE 10/29/91 DATA REVIEWER Stan Christensen REVIEW COMPLETION DATE 11/06/91

SAMPLE ID	SAMPLE LOCATION	MATRIX
MHT 429	TSB-WS-1	SLAG
MHT 430	TSB-WS-2	SLAG

DATA QUALITY STATEMENT*
( ) Data are ACCEPTABLE according to the Functional Guidelines with no qualifiers (flags) by the reviewer
(X) Data are acceptable with QUALIFICATIONS noted in review
( ) Data are UNACCEPTABLE according to the Functional Guidelines

Telephone/Communication Logs Enclosed? Yes X No ___
DPO Attention Required? Yes X No ___
If yes, list the items that require attention: Mercury analysis, see Instrument Calibration and the Telephone Log.
* Please see Data Qualifier Definitions, attached to the end of this report.

INORGANIC DATA QUALITY ASSURANCE REVIEW

REVIEW NARRATIVE SUMMARY

This data package was reviewed in accordance with the EPA document "Laboratory Data Validation Functional Guidelines for Inorganic Analyses", July 1, 1988 revision.

The data package consisted of 2 slag samples for RAS total metals.

The laboratory used a different method for calculating the calibration curve for mercury analysis. The Section on instrument calibration and the telephone log included in this review, discusses the method used by the laboratory.

The following table summarizes the data qualifiers added to sample analyses in this data package.

SAMPLE ID	ELEMENTS - QUALIFIERS	PROBLEM	SECTION(S) WHERE PROBLEM IS DISCUSSED
All	Arsenic - J & UJ	CRA Analysis	Form 2B
All	Zinc - J	Matrix Spike	Form V
All	Copper - J	Duplicate Analysis	Form VI
MHT 430	Selenium - UJ	Graphite Furnace Analysis	GFAA QC

J = Estimated
UJ = Estimated Undetected

Stan Christensen
236-7266

INORGANIC DATA QUALITY ASSURANCE REVIEW

Contract
SOW 3/90

RAS INORGANIC DELIVERABLES COMPLETENESS CHECKLIST

P Inorganic Cover Page
P Inorganic Analysis Data Sheets (Form I)
P Initial Calibration and Calibration Verification Results (Form II)
P Continuing Calibration Verification Results (Form II)
P CRDL Standard for ICP & AA (Form II, Part 2)
P Blank Analysis Results (Form III)
P ICP Interference Check Sample Results (Form IV)
P Spiked Sample Results (Form V)
P Post-digest Spiked Sample Analysis (Form V, Part 2)
P Duplicate Sample Results (Form VI)
P Instrument Detection Limits (Form VII) or (Form X - Quarterly)
P Laboratory Control Sample results (Form VII)
P Standard Addition Results (Form VIII)
P ICP Serial Dilution Results (Form IX)
NR Holding Times Summary Sheet (Form X)
P ICP Interelement Correction Factors (Form XII - Quarterly , or Form XI - Annually)
P ICP Linear Ranges (Form XII (XII) - Quarterly)
P Raw Data
P Samples P Calibration Standards P Blanks P Spikes
P Duplicates P ICP QC (ICS and Serial Dilution) P LCS
P Furnace AA P Mercury Analysis NA Cyanide Analysis
P Percent Solids Calculations - Solids Only
P Sample Prep/Digestion Logs (Form XIII)
P Analysis Run Log (Form XIV)
P Traffic Report(s)
P Chain of Custody
P Sample Description
P Case Narrative
P Method References

KEY: P = Provided in original data package, as required by contract
R = Provided as Resubmission
NP = Not provided in original data package or as resubmission
NR = Not required under contract
NA = Not applicable to this data package

Comments: None

INORGANIC DATA QUALITY ASSURANCE REVIEW

HOLDING TIMES

All CLP-SOW holding times were met.

Yes X No ___

Comments: None

All 40 CFR Part 136 holding times were met.

Yes X No ___

Comments: None

INSTRUMENT CALIBRATION: STANDARDS AND BLANKS

Initial instrument calibrations were performed according to contract requirements.

Yes X No ___

Comments: The laboratory used a different method for determining mercury concentration than specified in the SOW. The SOW requires that the peak height be used when calculating the curve and determining sample concentration. The laboratory measured percent transmission for each standard and sample and calculated absorbance from that value. The absorbance value was then used for each standard to calculate the calibration curve. The concentration for each sample was also determined by absorbance. This is a technically acceptable method and no qualifiers were added to sample analyses.

The instruments were calibrated daily and each time an analysis run was performed.

Yes X No ___

Comments: None

The instruments were calibrated using one blank and the appropriate number of standards.

Yes X No ___

Comments: None

FORM 1 - SAMPLE ANALYSIS RESULTS

Sample analyses were entered correctly on Form I's.

INORGANIC DATA QUALITY ASSURANCE REVIEW

Yes X No ___

Comments: None

FORM 2A - INITIAL AND CONTINUING CALIBRATION VERIFICATION

The initial and continuing calibration verification standards (ICV and CCV, respectively) met contract requirements.

Yes X No ___

Comments: None

The calibration verification results were within 90-110% recovery, (80-120% for mercury).

Yes X No ___

Comments: None

The continuing calibrations standards were run at 10% frequency.

Yes X No ___

Comments: None

FORM 2B - CRDL STANDARD FOR ICP AND AA

ICP Analysis: Standards (CRI) at 2X the CRDL or the IDL (whichever) were greater were analyzed at the beginning and the end of each sample run, or at a minimum of twice per eight hour shift, whichever was more frequent.

Yes X No ___

Comments: None

GFAA Analysis: Standards (CRA) at the CRDL were analyzed at the beginning of each sample run.

Yes X No ___

Comments: The CRA for arsenic is 10.0 µg/L. The laboratory had a result of 5.8 µg/L (58% recovery) for the CRA in the same analysis run in which sample MHT 429 was analyzed. The arsenic results for sample MHT 429 was 13.8 µg/L. Since the CRA recovery was so low (58%) and the arsenic result for sample MHT 429 was close to the CRA value, arsenic results have been qualified estimated "J" for sample MHT 429. The CRA

recovery for the analysis run in which sample MHT 430 was determined was 113%. Arsenic results for sample MHT 430 were not qualified.

The CRI and/or the CRA were analyzed after the ICV.

Yes X No ___ N/A __

Comments: None

FORM 3 - BLANKS

The initial and continuing calibration blanks (ICB and CCB, respectively) met contract requirements.

Yes X No ___

Comments: None

The continuing calibrations blanks were run at 10% frequency.

Yes X No ___

Comments: None

A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.

Yes X No ___

Comments: None

FORM 4 - ICP INTERFERENCE CHECK SAMPLE

The ICP interference check sample (ICS) was run twice per eight hour shift and/or at the beginning and end of each sample set analysis sequence (whichever is more frequent).

Yes X No ___

Comments: None

Percent recovery of the analytes in solution ICSAB were within the range of 80-120%,

Yes X No ___

Comments: None

INORGANIC DATA QUALITY ASSURANCE REVIEW

FORM 5A - MATRIX SPIKE SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No ___

Comments: None

The percent recoveries (%R) were calculated correctly.

$$\% \text{ Recovery} = \frac{(SSR - SR)}{SA} \times 100$$

SSR = spiked sample result
SR = sample result
SA = spike added

Yes X No ___

Comments: None

Spike recoveries were within the range of 75 - 125% (an exception is granted where the sample concentration is 4 times the spike concentration).

Yes ___ No X

Comments: The spike recovery for zinc was 50.4%. All zinc sample analyses were qualified estimated "J".

FORM 5B - POST DIGEST SPIKE RECOVERY

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e., Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less than four times the spike amount added, exception : Ag, Hg).

Yes X No ___ Not Required ___

Comments: None

FORM 6 - DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No ___

Comments: None

The RPDs were calculated correctly.

$$RPD = \frac{(S - D)}{(S + D)/2} \times 100$$

S = sample
D = duplicate

Yes X No ___

Comments: None

For sample concentrations >5 times the CRDL, RPDs were within ±20% (limits of ±35% apply for soil/sediments/tailings samples).

Yes ___ No X N/A ___

Comments: The RPD for copper duplicate analyses was 35.5%. Therefore all copper analyses were qualified estimated "J".

For sample concentrations <5 times the CRDL, duplicate analysis results were within the control window of ± CRDL.

Yes X No ___

Comments: None

GFAA QC

Duplicate injections were performed for each GFAA sample analysis.

Yes X No ___

Comments: None

The % relative standard deviation (%RSD) results were calculated correctly.

Yes X No ___ N/A ___

Comments: None.

%RSD results were within control limits.

Yes X No ___ N/A ___

Comments: None

Sample analyses were within calibration range.

Yes ___ No X

Comments: None

If sample analyses were not within calibration range, they were diluted and reanalyzed until they were within calibration range.

Yes X No ___ N/A ___

Comments: None.

QC spike recoveries less than 40% were diluted and respiked once.

Yes ___ No ___ Not Required X

Comments: No QC spike recoveries were less than 40%.

For samples with QC spike recoveries >40%:

Sample results <50% of the spike concentration with a spike recovery outside the range 85-115% were entered on Form I and flagged with a "W" qualifier.

Yes X No ___ N/A ___

Comments: Selenium analysis for sample MHT 430 was qualified estimated undetected "UJ" because the QC spike recovery was 61%.

Sample results with a spike recovery within the range 85-115% were entered on Form I with no qualifiers.

Yes X No ___ N/A ___

Comments: None

The method of standard additions (MSA) (at 50, 100 and 150 % of sample absorbance) was used when the sample results were >50% of the spike and the spike recovery was outside the range of 85-115%

Yes ___ No ___ Not Required X

Comments: None

Contract criteria for MSA analyses were met.

Yes ___ No ___ Not Required X

Comments: None

INORGANIC DATA QUALITY ASSURANCE REVIEW

FORM 7 - LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes _X_ No ___

Comments: None

All results were within the control limits.

Yes _X_ No ___

Comments: None

FORM 8 - STANDARD ADDITION RESULTS

Results from graphite furnace standard additions were entered on Form VIII as directed in the SOW.

Yes ___ No ___ N/A _X_

Comments: None

FORM 9 - ICP QC

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes _X_ No ___

Comments: None

The serial dilution was without interference problems as defined in the SOW.

Yes _X_ No ___

Comments: None

FORM 10 - QUARTERLY INSTRUMENT DETECTION LIMITS (IDL)

IDL's were provided for all elements on the target analyte list.

Yes _X_ No ___

Comments: None

INORGANIC DATA QUALITY ASSURANCE REVIEW

Comments: None

FORM 11 - INTERELEMENT CORRECTION FACTORS FOR ICP

Interelement corrections for ICP were reported.

Yes _X_ No ___ N/A ___

Comments: None

FORM 12 - ICP LINEAR RANGES

ICP linear ranges were reported.

Yes _X_ No ___

Comments: None

LINEAR RANGE VERIFICATION ANALYSIS

Linear Range Verification Analysis (LRA) was performed and results were within control limits of ± 5% of the true value.

Yes ___ No ___ N/A _X_

Comments: None

FORM 13 - PREPARATION LOG

Information on the preparation of samples for analysis was reported on Form XIII.

Yes _X_ No ___ Not Required ___

Comment: None

FORM 14 - ANALYSIS RUN LOG

A Form XIV with the required information was filled out for each analysis run in the data package.

Yes _X_ No ___ Not Required ___

Comments: None

Additional Comments or Problems/Resolutions (not addressed above).

INORGANIC DATA QUALITY ASSURANCE REVIEW

TELEPHONE LOG

On November 7, 1991 I talked to Mary Anna Babich from Keystone Laboratory in Monroeville, Pennsylvania. The laboratory was measuring the instrument response to mercury in percent transmission instead of peak height as specified in the CLP inorganic SOW. The laboratory was then converting percent transmission into absorbance for each standard and then calculating the calibration curve and used absorbance to calculate the concentration of mercury in each sample. This is an acceptable analytical technique but different from the method specified in the SOW. I informed Ms. Babich of this fact.

Stan Christ 11/7/91

INORGANIC DATA QUALITY ASSURANCE REVIEW

REGION VIII

DATA QUALIFIER DEFINITIONS

For the purpose of data validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality. Use of additional qualifiers should be carefully considered. Definitions for all qualifiers used should be provided with each report.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

R - Reported value is "rejected". Resampling or reanalysis may be necessary to verify the presence or absence of the compound.

J - The associated numerical value is an estimated quantity because the Quality Control criteria were not met.

U J - The reported amount is estimated because Quality Control criteria were not met. Element or compound was not detected.

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT429

e: KEYSTONE ENVIRONMENTAL   Contract: 68-D[illegible]

e: KEYPA   Case No.: 17[illegible]   SAS No.: [illegible]   SDG No.: MHT4[illegible]

(soil/water): SOIL   Lab Sample ID: MHT429

low/med): LOW   Date Received: [illegible]

s: 99.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	[illegible]			P	
7440-36-0	Antimony	2.80	U		P	
7440-38-2	Arsenic	1.8[illegible]			P	J
7440-39-3	Barium	19.80	B		P	
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium	[illegible]			P	
7440-70-2	Calcium	[illegible]	B		P	
7440-47-3	Chromium	17.10			P	
7440-48-4	Cobalt	3.30	B		P	
7440-50-8	Copper	30.70		*	P	J
7439-89-6	Iron	11300.00			P	
7439-92-1	Lead	1.70			P	
7439-95-4	Magnesium	214.00	B		P	
7439-96-5	Manganese	93.40			P	
7439-97-6	Mercury	0.10	U		CV	
7440-02-0	Nickel	52.40			P	
7440-09-7	Potassium	521.00	B		P	
7782-49-2	Selenium	0.20	U		P	
7440-22-4	Silver	[illegible]			P	
7440-23-5	Sodium	1520.00			P	
7440-28-0	Thallium	0.20	U		P	
7440-62-2	Vanadium	136.00			P	
7440-66-6	Zinc	121.00		N	P	J
	Cyanide				NR	

SC 11/11/91

ore: BLACK   Clarity Before: Texture: FINE

er: BLACK   Clarity After: Artifacts:

FORM I - IN

Name: KEYSTONE ENVIRONMENTAL Contract: 68-D1-0118

Code: KEYPA Case No.: 17018 SAS No.: 6604H SDG No.: MHT420

Matrix (soil/water): SOIL Lab Sample ID: MHT420

Level (low/med): LOW Date Received: 10/22/91

% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7160.00			P
7440-36-0	Antimony	2.80	U		P
7440-38-2	Arsenic	7.00	U		F
7440-39-3	Barium	60.60			P
7440-41-7	Beryllium	0.24	B		P
7440-43-9	Cadmium	1.00	U		P
7440-70-2	Calcium	92100.00			P
7440-47-3	Chromium	6.62	B		P
7440-48-4	Cobalt	3.20	B		P
7440-50-8	Copper	14.70		W	P
7439-89-6	Iron	3000.00			P
7439-92-1	Lead	2.80			F
7439-95-4	Magnesium	570.00	B		P
7439-96-5	Manganese	94.40			P
7439-97-6	Mercury	0.10	U		CV
7439-02-0	Nickel	8.80			P
7440-09-7	Potassium	567.00	B		P
7782-49-2	Selenium	0.40	U	W	F
7440-22-4	Silver	437.00		W	P
7440-23-5	Sodium	404.00	B		P
7440-28-0	Thallium	0.20	U		F
7440-62-2	Vanadium	21.30			P
7440-66-6	Zinc	9.20		N	P
	Cyanide				NR

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Color Before: GREY Clarity Before: Texture: FINE

Color After: GREY Clarity After: Artifacts:

Note:
DILUTION FOR AS

SC 11/7/91

00023

Instrument Detection Limits (ug/L)

ame: KEYSTONE ENVIRONMENTAL Contract: 68-C0-0148

ode: KEYPA Case No.: 17018 SAS No.: 6604H SDG No.: MH1429

D Number: Date: 07/15/91

AA ID Number: PE30B

ce AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		5
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury	253.7		0.2	0.2	CV
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR

te:

unvalidated data (lab checks not included)

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

SOW No.: 3/90

EPA Sample No.	Lab Sample ID.
MHP571	CLP7921
~~MHP571D~~	CLP7921
~~MHP571S~~	CLP7921
MHP572	CLP7922
~~MHP572D~~	CLP7922
~~MHP572S~~	CLP7922
MHP573	CLP7923
MHP574	CLP7924
MHP575	CLP7925
MHP576	CLP7926
MHP577	CLP7927
MHP578	CLP7928
MHP579	CLP7929
MHP580	CLP7930
MHP581	CLP7931
MHP582	CLP7932
~~MHP582D~~	CLP7932
~~MHP582S~~	CLP7932
MHP583	CLP7933
MHP584	CLP7934

re ICP interelement corrections applied? Yes/No YES

re ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

ments:

certify that this data package is in compliance with the terms and nditions of the contract, both technically and for completeness, for other an the conditions detailed above. Release of the data contained in this rdcopy data package and in the computer-readable data submitted on skette has been authorized by the Laboratory Manager or the Manager's signee, as verified by the following signature.

gnature: Brent E. Stephens Name: BRENT E. STEPHENS

e: AUGUST 5, 1991 Title: SECTION MANAGER

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

SOW No.: 3/90

EPA Sample No.	Lab Sample ID.
MHP585	CLP7935
~~MHP585D~~	CLP7935
~~MHP585S~~	CLP7935

ere ICP interelement corrections applied? Yes/No YES

ere ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

omments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

3

Signature: Name: BRENT E. STEPHENS

Date: AUGUST 5, 1991 Title: SECTION MANAGER

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP571

ame: DATACHEM LABORATORIES Contract: 68-D0-0149

ode: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

x (soil/water): SOIL Lab Sample ID: CLP7921

(low/med): LOW Date Received: 07/19/91

ids: 85.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12200			P
7440-36-0	Antimony	10.8	U	N	P
7440-38-2	Arsenic	8.9			F
7440-39-3	Barium	246			P
7440-41-7	Beryllium	0.82	B		P
7440-43-9	Cadmium	0.71	U		P
7440-70-2	Calcium	25300			P
7440-47-3	Chromium	19.8			P
7440-48-4	Cobalt	13.1			P
7440-50-8	Copper	17.1			P
7439-89-6	Iron	20800			P
7439-92-1	Lead	24.4			F
7439-95-4	Magnesium	9570			P
7439-96-5	Manganese	1210			P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	35.0			P
7440-09-7	Potassium	2910			P
7782-49-2	Selenium	0.24	U		F
7440-22-4	Silver	1.2	U	*	P
7440-23-5	Sodium	30.0	B		P
7440-28-0	Thallium	0.29	B		F
7440-62-2	Vanadium	36.6			P
7440-66-6	Zinc	66.4			P
	Cyanide	2.9	U		AS

ore: BROWN Clarity Before: Texture: MEDIUM

er: YELLOW Clarity After: Artifacts:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP572

ab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

ab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

atrix (soil/water): SOIL Lab Sample ID: CLP7922

evel (low/med): LOW Date Received: 07/19/91

Solids: 94.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9580			P
7440-36-0	Antimony	9.8	U	N	P
7440-38-2	Arsenic	9.4			F
7440-39-3	Barium	276			P
7440-41-7	Beryllium	0.66	B		P
7440-43-9	Cadmium	1.1			P
7440-70-2	Calcium	25200			P
7440-47-3	Chromium	17.2			P
7440-48-4	Cobalt	9.0	B		P
7440-50-8	Copper	32.2			P
7439-89-6	Iron	18500			P
7439-92-1	Lead	457			F
7439-95-4	Magnesium	7650			P
7439-96-5	Manganese	1000			P
7439-97-6	Mercury	0.38			CV
7440-02-0	Nickel	24.1			P
7440-09-7	Potassium	2950			P
7782-49-2	Selenium	0.21	U		F
7440-22-4	Silver	194		*	P
7440-23-5	Sodium	31.1	B		P
7440-28-0	Thallium	0.22	B	W	F
7440-62-2	Vanadium	28.2			P
7440-66-6	Zinc	113			P
	Cyanide	2.7	U		AS

r Before: BROWN Clarity Before: Texture: MEDIUM

r After: YELLOW Clarity After: Artifacts:

ents:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP573

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

Matrix (soil/water): SOIL Lab Sample ID: CLP7923

Level (low/med): LOW Date Received: 07/19/91

% Solids: 91.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13600			P
7440-36-0	Antimony	10.1	U	N	P
7440-38-2	Arsenic	9.3			F
7440-39-3	Barium	300			P
7440-41-7	Beryllium	0.74	B		P
7440-43-9	Cadmium	0.83	B		P
7440-70-2	Calcium	19200			P
7440-47-3	Chromium	21.2			P
7440-48-4	Cobalt	12.1			P
7440-50-8	Copper	16.2			P
7439-89-6	Iron	20800			P
7439-92-1	Lead	63.7			F
7439-95-4	Magnesium	7780			P
7439-96-5	Manganese	1120			P
7439-97-6	Mercury	0.99			CV
7440-02-0	Nickel	34.1			P
7440-09-7	Potassium	3070			P
7782-49-2	Selenium	0.22	U		F
7440-22-4	Silver	34.9		*	P
7440-23-5	Sodium	9.6	U		P
7440-28-0	Thallium	0.22	U		F
7440-62-2	Vanadium	38.9			P
7440-66-6	Zinc	93.1			P
	Cyanide	2.7	U		AS

lor Before: BROWN Clarity Before: Texture: MEDIUM

lor After: YELLOW Clarity After: Artifacts:

uments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP574

me: DATACHEM LABORATORIES Contract: 68-D0-0149

de: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

(soil/water): SOIL Lab Sample ID: CLP7924

(low/med): LOW Date Received: 07/19/91

ds: 84.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11900			P
7440-36-0	Antimony	10.9	U	N	P
7440-38-2	Arsenic	8.8			F
7440-39-3	Barium	288			P
7440-41-7	Beryllium	0.38	B		P
7440-43-9	Cadmium	1.9			P
7440-70-2	Calcium	20900			P
7440-47-3	Chromium	19.9			P
7440-48-4	Cobalt	11.1	B		P
7440-50-8	Copper	19.4			P
7439-89-6	Iron	20000			P
7439-92-1	Lead	56.3			F
7439-95-4	Magnesium	7360			P
7439-96-5	Manganese	1190			P
7439-97-6	Mercury	2.7			CV
7440-02-0	Nickel	30.5			P
7440-09-7	Potassium	2720			P
7782-49-2	Selenium	0.24	U	W	F
7440-22-4	Silver	256		*	P
7440-23-5	Sodium	10.4	U		P
7440-28-0	Thallium	0.29	B		F
7440-62-2	Vanadium	35.3			P
7440-66-6	Zinc	136			P
	Cyanide	3.0	U		AS

fore: BROWN Clarity Before: Texture: MEDIUM

ter: YELLOW Clarity After: Artifacts:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP575

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

Matrix (soil/water): SOIL Lab Sample ID: CLP7925

Level (low/med): LOW Date Received: 07/19/91

% Solids: 79.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11400			P
7440-36-0	Antimony	11.5	U	N	P
7440-38-2	Arsenic	7.0			F
7440-39-3	Barium	260			P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	0.75	U		P
7440-70-2	Calcium	28800			P
7440-47-3	Chromium	17.5			P
7440-48-4	Cobalt	9.2	B		P
7440-50-8	Copper	15.4			P
7439-89-6	Iron	18200			P
7439-92-1	Lead	20.9		S	F
7439-95-4	Magnesium	6940			P
7439-96-5	Manganese	853			P
7439-97-6	Mercury	0.13	U		CV
7440-02-0	Nickel	25.1			P
7440-09-7	Potassium	4990			P
7782-49-2	Selenium	0.25	U		F
7440-22-4	Silver	1.7	B	*	P
7440-23-5	Sodium	11.0	U		P
7440-28-0	Thallium	0.25	U		F
7440-62-2	Vanadium	34.1			P
7440-66-6	Zinc	71.7			P
	Cyanide	3.1	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP576

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

Matrix (soil/water): SOIL Lab Sample ID: CLP7926

Level (low/med): LOW Date Received: 07/19/91

% Solids: 85.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10600			P
7440-36-0	Antimony	10.7	U	N	P
7440-38-2	Arsenic	8.6			F
7440-39-3	Barium	289			P
7440-41-7	Beryllium	0.85	B		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	21600			P
7440-47-3	Chromium	17.5			P
7440-48-4	Cobalt	11.5	B		P
7440-50-8	Copper	19.1			P
7439-89-6	Iron	23900			P
7439-92-1	Lead	22.9		S	F
7439-95-4	Magnesium	7590			P
7439-96-5	Manganese	1010			P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	30.8			P
7440-09-7	Potassium	3210			P
7782-49-2	Selenium	0.23	U	W	F
7440-22-4	Silver	17.8		*	P
7440-23-5	Sodium	10.3	U		P
7440-28-0	Thallium	0.32	B	W	F
7440-62-2	Vanadium	29.6			P
7440-66-6	Zinc	94.4			P
	Cyanide	2.9	U		AS

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: YELLOW Clarity After: Artifacts:

omments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP577

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

Matrix (soil/water): SOIL

Level (low/med): LOW

Lab Sample ID: CLP7927

% Solids: 95.5

Date Received: 07/19/91

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1970			P
7440-36-0	Antimony	9.6	U	N	P
7440-38-2	Arsenic	5.8			P
7440-39-3	Barium	80.2			P
7440-41-7	Beryllium	0.21	U		P
7440-43-9	Cadmium	18.3			P
7440-70-2	Calcium	53500			P
7440-47-3	Chromium	6.9			P
7440-48-4	Cobalt	5.3	B		P
7440-50-8	Copper	156			P
7439-89-6	Iron	10300			P
7439-92-1	Lead	43.4			P
7439-95-4	Magnesium	13500			P
7439-96-5	Manganese	1730			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	22.0			P
7440-09-7	Potassium	560	B		P
7782-49-2	Selenium	0.21	U	W	P
7440-22-4	Silver	265		*	P
7440-23-5	Sodium	9.2	U		P
7440-28-0	Thallium	0.23	B	W	P
7440-62-2	Vanadium	10.0	B		P
7440-66-6	Zinc	49.2			P
	Cyanide	2.6	U		AS

or Before: BROWN Clarity Before: Texture: MEDIUM

or After: YELLOW Clarity After: Artifacts:

ments:

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EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MHP578

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

Matrix (soil/water): SOIL Lab Sample ID: CLP7928

Level (low/med): LOW Date Received: 07/19/91

% Solids: 92.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10800			P
7440-36-0	Antimony	9.9	U	N	P
7440-38-2	Arsenic	6.9			F
7440-39-3	Barium	293			P
7440-41-7	Beryllium	0.28	B		P
7440-43-9	Cadmium	0.65	U		P
7440-70-2	Calcium	31100			P
7440-47-3	Chromium	19.1			P
7440-48-4	Cobalt	9.8	B		P
7440-50-8	Copper	21.9			P
7439-89-6	Iron	16200			P
7439-92-1	Lead	27.5			F
7439-95-4	Magnesium	10300			P
7439-96-5	Manganese	1390			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	23.2			P
7440-09-7	Potassium	1790			P
7782-49-2	Selenium	0.22	U	W	F
7440-22-4	Silver	210		*	P
7440-23-5	Sodium	63.4	B		P
7440-28-0	Thallium	0.28	B		F
7440-62-2	Vanadium	25.2			P
7440-66-6	Zinc	72.8			P
	Cyanide	2.7	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

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INORGANIC ANALYSIS DATA SHEET

MHP579

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

Matrix (soil/water): SOIL Lab Sample ID: CLP7929

Level (low/med): LOW Date Received: 07/19/91

% Solids: 87.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14200			P
7440-36-0	Antimony	10.5	U	N	P
7440-38-2	Arsenic	10.5			F
7440-39-3	Barium	240			P
7440-41-7	Beryllium	0.90	B		P
7440-43-9	Cadmium	0.77	B		P
7440-70-2	Calcium	4040			P
7440-47-3	Chromium	20.2			P
7440-48-4	Cobalt	12.4			P
7440-50-8	Copper	18.7			P
7439-89-6	Iron	21400			P
7439-92-1	Lead	20.6		S	F
7439-95-4	Magnesium	3550			P
7439-96-5	Manganese	912			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	25.1			P
7440-09-7	Potassium	2980			P
7782-49-2	Selenium	0.42	B		F
7440-22-4	Silver	1.1	U	*	P
7440-23-5	Sodium	10.0	U		P
7440-28-0	Thallium	0.32	B		F
7440-62-2	Vanadium	36.0			P
7440-66-6	Zinc	94.3			P
	Cyanide	2.9	U		AS

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: YELLOW Clarity After: Artifacts:

omments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP580

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

Matrix (soil/water): SOIL Lab Sample ID: CLP7930

Level (low/med): LOW Date Received: 07/19/91

% Solids: 87.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12200			P
7440-36-0	Antimony	10.5	U	N	P
7440-38-2	Arsenic	6.8			F
7440-39-3	Barium	180			P
7440-41-7	Beryllium	0.59	B		P
7440-43-9	Cadmium	0.68	U		P
7440-70-2	Calcium	12800			P
7440-47-3	Chromium	19.3			P
7440-48-4	Cobalt	10.5	B		P
7440-50-8	Copper	11.3			P
7439-89-6	Iron	16700			P
7439-92-1	Lead	13.3		S	F
7439-95-4	Magnesium	4760			P
7439-96-5	Manganese	611			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	26.4			P
7440-09-7	Potassium	1550			P
7782-49-2	Selenium	2.4			F
7440-22-4	Silver	1.1	U	*	P
7440-23-5	Sodium	10.0	U		P
7440-28-0	Thallium	0.27	B		F
7440-62-2	Vanadium	33.0			P
7440-66-6	Zinc	70.3			P
	Cyanide	2.9	U		AS

or Before: BROWN Clarity Before: Texture: MEDIUM

or After: YELLOW Clarity After: Artifacts:

ents:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MHP581

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

Matrix (soil/water): SOIL Lab Sample ID: CLP7931

Level (low/med): LOW Date Received: 07/19/91

% Solids: 76.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14000			P
7440-36-0	Antimony	12.0	U	N	P
7440-38-2	Arsenic	8.5			F
7440-39-3	Barium	221			P
7440-41-7	Beryllium	0.56	B		P
7440-43-9	Cadmium	0.78	U		P
7440-70-2	Calcium	10900			P
7440-47-3	Chromium	20.4			P
7440-48-4	Cobalt	11.5	B		P
7440-50-8	Copper	12.6			P
7439-89-6	Iron	19200			P
7439-92-1	Lead	14.0			F
7439-95-4	Magnesium	4360			P
7439-96-5	Manganese	1200			P
7439-97-6	Mercury	0.13	U		CV
7440-02-0	Nickel	28.2			P
7440-09-7	Potassium	2270			P
7782-49-2	Selenium	1.8			F
7440-22-4	Silver	1.3	U	*	P
7440-23-5	Sodium	11.5	U		P
7440-28-0	Thallium	0.27	B	W	F
7440-62-2	Vanadium	36.1			P
7440-66-6	Zinc	70.7			P
	Cyanide	3.3	U		AS

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: YELLOW Clarity After: Artifacts:

omments:

U.S. EPA - CLP

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EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MHP582

ab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

ab Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

atrix (soil/water): WATER Lab Sample ID: CLP7932

evel (low/med): LOW Date Received: 07/19/91

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1170		*	P
7440-36-0	Antimony	46.0	U		P
7440-38-2	Arsenic	1.1	B	W	F
7440-39-3	Barium	69.5	B		P
7440-41-7	Beryllium	1.5	B		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	238000			P
7440-47-3	Chromium	7.0	U		P
7440-48-4	Cobalt	6.0	U		P
7440-50-8	Copper	45.8			P
7439-89-6	Iron	1340			P
7439-92-1	Lead	1.0	U	NW	F
7439-95-4	Magnesium	152000			P
7439-96-5	Manganese	5920			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	41.8			P
7440-09-7	Potassium	8630			P
7782-49-2	Selenium	10.0	U	N*	F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	59400			P
7440-28-0	Thallium	1.0	U	NW	F
7440-62-2	Vanadium	11.0	B		P
7440-66-6	Zinc	96.6			P
	Cyanide	10.0	U		AS

Before: COLORLESS Clarity Before: CLEAR Texture:

After: COLORLESS Clarity After: CLEAR Artifacts:

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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP583

Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

ix (soil/water): SOIL Lab Sample ID: CLP7933

l (low/med): LOW Date Received: 07/19/91

lids: 79.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600			P
7440-36-0	Antimony	11.5	U	N	P
7440-38-2	Arsenic	9.1		S	F
7440-39-3	Barium	256			P
7440-41-7	Beryllium	0.31	B		P
7440-43-9	Cadmium	1.2	B		P
7440-70-2	Calcium	19900			P
7440-47-3	Chromium	18.2			P
7440-48-4	Cobalt	10.4	B		P
7440-50-8	Copper	17.0			P
7439-89-6	Iron	18900			P
7439-92-1	Lead	35.2			F
7439-95-4	Magnesium	6630			P
7439-96-5	Manganese	1020			P
7439-97-6	Mercury	0.13	U		CV
7440-02-0	Nickel	30.5			P
7440-09-7	Potassium	3730			P
7782-49-2	Selenium	0.25	U	W	F
7440-22-4	Silver	7.6		*	P
7440-23-5	Sodium	11.0	U		P
7440-28-0	Thallium	0.27	B		F
7440-62-2	Vanadium	31.8			P
7440-66-6	Zinc	109			P
	Cyanide	3.1	U		AS

efore: BROWN Clarity Before: Texture: MEDIUM

fter: YELLOW Clarity After: Artifacts:

s:

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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP584

ab Name: DATACHEM LABORATORIES Contract: 68-D0-0149 SDG No.: MHP571

ab Code: DATAC Case No.: 16702 SAS No.:

trix (soil/water): SOIL Lab Sample ID: CLP7934

vel (low/med): LOW Date Received: 07/19/91

Solids: 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5430			P
7440-36-0	Antimony	10.0	U	N	P
7440-38-2	Arsenic	8.4			F
7440-39-3	Barium	239			P
7440-41-7	Beryllium	0.30	B		P
7440-43-9	Cadmium	0.65	U		P
7440-70-2	Calcium	35600			P
7440-47-3	Chromium	13.8			P
7440-48-4	Cobalt	10.4	B		P
7440-50-8	Copper	12.6			P
7439-89-6	Iron	25100			P
7439-92-1	Lead	11.4			F
7439-95-4	Magnesium	8650			P
7439-96-5	Manganese	2160			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	27.1			P
7440-09-7	Potassium	1360			P
7782-49-2	Selenium	0.22	U		F
7440-22-4	Silver	132		*	P
7440-23-5	Sodium	9.5	U		P
7440-28-0	Thallium	0.37	B		F
7440-62-2	Vanadium	22.3			P
7440-66-6	Zinc	76.8			P
	Cyanide	2.7	U		AS

Before: BROWN Clarity Before: Texture: MEDIUM

After: YELLOW Clarity After: Artifacts:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP585

Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Code: DATAC Case No.: 16702 SAS No.: SDG No.: MHP571

rix (soil/water): SOIL Lab Sample ID: CLP7935

el (low/med): LOW Date Received: 07/19/91

olids: 76.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13700			P
7440-36-0	Antimony	12.0	U	N	P
7440-38-2	Arsenic	13.1		S	F
7440-39-3	Barium	258			P
7440-41-7	Beryllium	0.69	B		P
7440-43-9	Cadmium	0.78	U		P
7440-70-2	Calcium	3360			P
7440-47-3	Chromium	20.4			P
7440-48-4	Cobalt	11.9	B		P
7440-50-8	Copper	16.6			P
7439-89-6	Iron	22000			P
7439-92-1	Lead	21.6		S	F
7439-95-4	Magnesium	3620			P
7439-96-5	Manganese	610			P
7439-97-6	Mercury	0.13	U		CV
7440-02-0	Nickel	26.1			P
7440-09-7	Potassium	3730			P
7782-49-2	Selenium	0.26	U		F
7440-22-4	Silver	1.8	B	*	P
7440-23-5	Sodium	11.4	U		P
7440-28-0	Thallium	0.39	B	W	F
7440-62-2	Vanadium	34.0			P
7440-66-6	Zinc	112			P
	Cyanide	3.3	U		AS

Before: BROWN Clarity Before: Texture: MEDIUM

After: YELLOW Clarity After: Artifacts:

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